UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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SAMSUNG ELECTRONICS CO., LTD.,
SAMSUNG ELECTRONICS AMERICA, INC., and APPLE INC.,
Petitioner,

v.

SMART MOBILE TECHNOLOGIES LLC,
Patent Owner.

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IPR2022-01004
Patent 9,614,943 B1

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Before HYUN J. JUNG, NATHAN A. ENGELS, and
PAUL J. KORNICZKY, *Administrative Patent Judges.*

JUNG, *Administrative Patent Judge.*

JUDGMENT
Final Written Decision
Determining Some Challenged Claims Unpatentable
35 U.S.C. § 318(a)

I. INTRODUCTION

We have jurisdiction under 35 U.S.C. § 6. This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons that follow, we determine that Samsung Electronics Co., Ltd., Samsung Electronics America, Inc., and Apple Inc. (collectively, "Petitioner") have shown by a preponderance of the evidence that claims 1, 5–9, and 12–14, but not claims 2–4 and 15–20, of U.S. Patent No. 9,614,943 B1 (Ex. 1001, "the '943 patent") are unpatentable.

A. Background and Summary

Petitioner filed a Petition (Paper 2, "Pet.") requesting institution of an *inter partes* review of claims 1–9 and 12–20 of the '943 patent. Smart Mobile Technologies LLC ("Patent Owner") filed a Preliminary Response (Paper 6). After receiving authorization, Petitioner filed a Reply to the Preliminary Response (Paper 7), and Patent Owner filed a Sur-reply (Paper 8). Pursuant to 35 U.S.C. § 314, we instituted an *inter partes* review of claims 1–9 and 12–20 of the '943 patent on all presented challenges. Paper 13 ("Inst. Dec."), 2, 71.

After institution, Patent Owner filed a Response (Paper 24, "PO Resp."), to which Petitioner filed a Reply (Paper 29, "Pet. Reply"), and Patent Owner thereafter filed a Sur-reply (Paper 35, "PO Sur-reply"). An oral hearing in this proceeding was held on September 15, 2023; a transcript of the hearing is included in the record. Paper 39 ("Tr.").

B. Real Parties in Interest

Petitioner identifies Samsung Electronics Co., Ltd., Samsung Electronics America, Inc., and Apple Inc. as real parties in interest. Pet. 88. Patent Owner only identifies itself as a real party in interest. Paper 4, 1.

C. Related Matters

The parties identify *Smart Mobile Techs. LLC v. Apple Inc.*, 6:21-cv-00603 (W.D. Tex.) and *Smart Mobile Techs. LLC v. Samsung Elects. Co., Ltd.*, 6:21-cv-00701 (W.D. Tex.) as related matters. Pet. 89; Paper 4, 1. Related patents are challenged in IPR2022-00766, IPR2022-01005, IPR2022-01222, IPR2022-01248, and IPR2022-01249.

D. The '943 Patent (Ex. 1001)

The '943 patent issued on April 4, 2017 from an application filed on September 17, 2012, which is a continuation application of several previously filed continuation and continuation-in-part applications, the earliest of which was filed on December 16, 1996. Ex. 1001, codes (22), (45), (63), 1:8–18.

The '943 patent states that an unfulfilled need exists for multiple transmitters and receivers ("T/R") in a cellular telephone or mobile wireless device ("CT/MD"). Ex. 1001, 1:48–49. Figure 5A of the '943 patent is reproduced below.
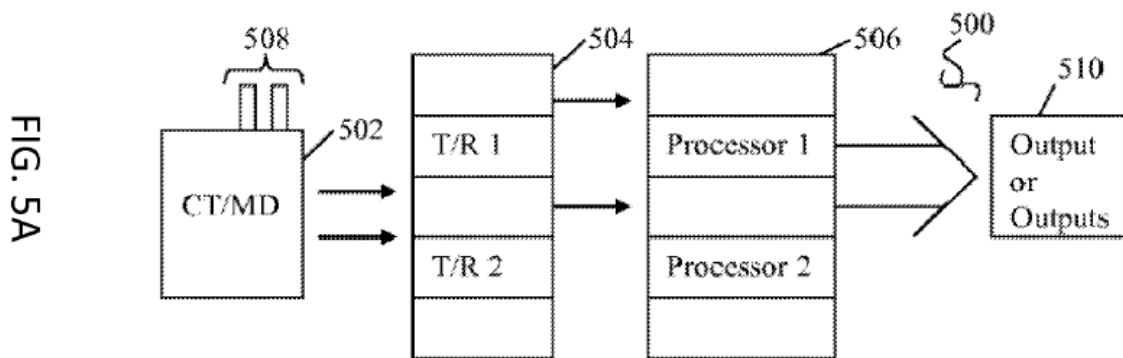

Figure 5A shows a "a dual antenna, dual T/R unit in a CT/MD interfacing with a dual processor." Ex. 1001, 2:15–16. Dual antenna 508 and dual T/R unit 504 interface with dual processor 506 in dual band system 500. Ex. 1001, 4:39–41. System 500 can communicate through

outputs 510, which can be "fibre optic channel, ethernet, cable, telephone, or other." *Id.* at 4:44–47.

"The multiple processors 506 allow for parallel and custom processing of each signal or data stream to achieve higher speed and better quality of output." Ex. 1001, 4:54–56. Alternatively, there can be "a single processor that has the parallelism and pipeline capability built in for handling one or more data streams simultaneously." *Id.* at 4:56–59. Processors 506 include "DSP, CPU, memory controller, and other elements essential to process various types of signals." *Id.* at 4:59–61.

"The processor contained within the CT/MD 502 is further capable of delivering the required outputs to a number of different ports such as optical, USB, cable and others" and "capable of taking different inputs, as well as wireless." Ex. 1001, 4:63–67. "Thus the CT/MD 502 has universal connectivity in addition to having a wide range of functionality made possible through the features of multiple antennas, multiple T/R units 504 and processors 506." *Id.* at 5:3–6.

"[T]he CT/MD may use one or more transmission protocols as deemed optimal and appropriate," and "the CT/MD determines the required frequency spectrum, other wireless parameters such as power and signal to noise ratio to optimally transmit the data." Ex. 1001, 11:8–10, 11:12–15. The CT/MD has "the ability to multiplex between one or more transmission protocols such as CDMA, TDMA to ensure that the fast data rates of the optical network or matched closely in a wireless network to minimize the potential data transmission speed degradation of a wireless network." *Id.* at 11:15–20.

Also, the '943 patent states "by having each of the data streams sampled at differing clock frequencies the performance can be better

optimized." Ex. 1001, 4:36–38. "Each channel may be sampled and clocked individually as necessary to optimally process each data stream and combine the individual data packets." *Id.* at 7:50–52.

E. Illustrative Claim

The '943 patent includes 20 claims, of which Petitioner challenges claims 1–9 and 12–20. Of the challenged claims, claims 1, 5, 8, and 12 are independent, and claim 1 is reproduced below.

> 1. A wireless communication device comprising:
> a plurality of antennas; and
> a communication component coupled to the plurality of antennas, the communication component including a processor, a transmitter, and a receiver,
> wherein the communication component is configured to communicate via a first frequency band using a wireless communication protocol; and
> wherein one or more subtasks are assigned to one or more channels, and the one or more channels are sampled and clocked individually; and
> wherein the processor comprises multiple ones of the one or more channels and is further configured to process a first data stream and a second data stream in parallel.

Ex. 1001, 11:63–12:9.

Independent claims 5, 8, and 12 also recite a "wireless communication device" and the limitations "a plurality of antennas," "a communication component coupled to the plurality of antennas, the communication component including a processor, a transmitter, and a receiver," "wherein one or more subtasks are assigned to one or more channels, and the one or more channels are sampled and clocked individually," and "wherein the processor comprises multiple ones of the one or more channels and is further configured to process a first data stream and a second data stream in

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